



Bridgestone Americas, Inc.
535 Marriott Drive
Nashville, TN 37214
Jane Johnson
615-937-1856

February 3, 2017

John Hopkins
Land and Chemicals Division
USEPA Region III
1650 Arch Street (3LC20)
Philadelphia, PA 19103

Re: Quarterly Progress Report #32
October 1 – December 31, 2016
Former Allied Signal Fibers Plant
105 Winston Churchill Drive
Hopewell, Virginia 23860
USEPA ID# VAD003112588

Dear Mr. Hopkins:

Attached, as required by Section II, Task IV of Facility Lead, Corrective Measures Implementation Agreement (FLA), please find the Quarterly Progress Report #32 for the time period of October 1 through December 31, 2016 for the above referenced site.

I certify under a penalty of law that Quarterly Progress Report #32 was prepared under my direction or supervision in accordance to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Please contact me at 615-937-1856 or johnsonjane@bfusa.com if you have any questions or additional thoughts regarding the Quarterly Progress Report.

Sincerely,

Jane M. Johnson

Cc: Norm Kennel, EarthCon Consultants, Inc.

QUARTERLY PROGRESS REPORT #32

**Former Allied Signal Fibers Plant
Hopewell, Virginia
USEPA ID#: VAD003112588**

Section 1 – Purpose of Quarterly Report

This Quarterly Progress Report was prepared by Bridgestone Americas Tire Operations, LLC (BATO) to comply with BATO's reporting requirements under Section II, Task IV of Facility Lead, Corrective Measures Implementation Agreement (FLA), effective December 16, 2008, for the former Allied Signal Fibers Plant.

Section 2 - Introduction and Background

The Former Allied Signal Fibers Plant consists of an approximately 37-acre parcel of land located at 105 Winston Churchill Drive in Hopewell, Virginia (site).

On February 22, 2006, United States Environmental Protection Agency (USEPA) issued a Notice of Intent to issue a Final Determination for the site. The proposed remedy was monitored natural attenuation with controls. The public comment period lasted 45 days, which ended on April 7, 2006. There were no comments on the proposed Final Determination.

During the development of the FLA, BATO, formerly Bridgestone Americas North American Tire, LLC, developed and submitted a CMI Work Plan (Groundwater Monitored Natural Attenuation Plan, dated August 18, 2008) to USEPA. On August 19, 2008, USEPA approved the CMI Work Plan. The CMI Work Plan was implemented in October, 2008 when the baseline groundwater monitoring event was conducted.

On December 16, 2008, following the sale of the site, BATO submitted a Letter of Commitment to USEPA. The Letter of Commitment outlined the Sections of the FLA that BATO intends to comply with as the former Owner/Operator.

In a letter dated February 5, 2009, BATO indicated that the site work performed to date by BATO met the requirements of Section II; Tasks I, II, and III of the FLA. On February 5, 2009 USEPA indicated that they were in agreement with this assessment and that BATO would be required to complete progress reports in accordance with Section II, Task IV of the FLA.

The third and final CMI Work Plan required groundwater monitoring event was conducted in November 2010. The November 2010 sampling event concluded the required groundwater monitoring activities under the CMI Work Plan. In accordance with the CMI Work Plan, a Comprehensive Natural Attenuation Evaluation Report (CNAER) was prepared during this reporting period. The CNAER was included in the Corrective Measures Completion Report (CMCR) which was sent to USEPA in April 2011. BATO received USEPA's comments in June 2011 and responded in July 2011 with a proposal to continue groundwater monitoring.

The EPA responded on August 4, 2011 that BATO's plans were sufficient to address the comments on the CMR. USEPA requested that groundwater samples be collected from the same groundwater monitoring wells utilized in the CMI Work Plan network (with the exception of HPMW-04 which could be discontinued) and that BATO should submit the data to USEPA for evaluation of Site closure once two consecutive years of groundwater concentrations below the MCLs were received.

On August 9, 2016, EPA conducted a long-term stewardship site visit with BATO's environmental contractor and Dominion Virginia Power representatives to inspect some of the monitoring wells and discuss and assess the status of the remedy implementation at the site. On August 30, 2016 EPA issued a site visit follow-up Long-Term Stewardship Assessment Report (EPA Report) for the site. The August 30, 2016 EPA Report included the following:

Conclusions and Recommendations: No EC/IC deficiencies were identified. EPA has determined that the remedy EC/ICs have been and are being implemented. EPA recommends that Firestone:

1. *Include historical trend graphs for exceeding constituents at monitoring wells ASMW-01R, ASMW-02 and ASMW-03 in future groundwater reports.*
2. *Include concentration contours on a site map for exceeding constituents in future groundwater reports.*

This Quarterly Progress Report was prepared to comply with the Section II, Task IV of FLA for the time period of October 1 through December 31, 2016. Section 3 of this Quarterly Progress Report summarizes work performed during this reporting period. Section 4 discusses any projected work for the next reporting period.

Section 3 – Work Performed during this Reporting Period

In accordance with the August 2011 letter, groundwater samples were collected in November 2016 from the same groundwater monitoring wells utilized in the CMI Work Plan network, see **Figures 1 and 2**. Wells were sampled for site VOCs, 1,4-dioxane, nitrate, alkalinity, chloride, sulfate, sulfide, TOC and dissolved gasses. Groundwater samples were submitted to Air, Water and Soil Laboratories and GD Air Testing. Field parameters were analyzed during well purging with a groundwater quality meter.

Analytical results from the November 2016 sampling event indicate that detected VOC 1,1-dichloroethene concentrations in samples collected from monitoring wells ASMW-01R, ASMW-02, and ASMW-04 were above EPA Maximum Contaminant Level (MCL). The detected concentrations of 1,1-dichloroethene from these monitoring wells are within the historical ranges previously detected, see **Figure 3**.

The analytical results and observed field measurements are summarized in **Table 1**. The data validation memo and original lab results are included as **Appendix A** and **Appendix B**, respectively.

Section 4- Additions to Current and Future Monitoring Reports

In accordance with the conclusions and recommendations of the August 30, 2016 EPA Report the following additions were made to this report:

- A 1,1-dichloroethene isoconcentration map is included as **Figure 4**. Isoconcentration maps for exceeding constituents will be included in future groundwater reports.
- A historical trend graph chart for the single exceeding constituent (1,1-dichloroethene) at monitoring wells ASMW-01R and ASMW-02 is included as **Figure 5**. (ASMW-03 did not contain any constituents exceeding the screening criterion). Future groundwater reports will include historical trend graphs for exceeding constituents.

Section 5 – Projected Work for next Reporting Period

None Anticipated

Attachments:

- Figure 1 Site Plan and Monitoring Locations**
- Figure 2 Potentiometric Surface Map – November 2016**
- Figure 3 Detected Constituents**
- Figure 4 1,1-Dichloroethene Isoconcentration Map**
- Figure 5 1,1-Dichloroethene Historic Concentration Chart**
- Table 1 Summary of Groundwater Sampling Results**
- Appendix A Data Validation Memo**
- Appendix B Laboratory Analytical Results from Annual Groundwater Sampling**

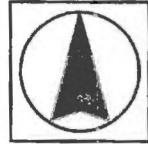


Figure 1
Site Map

**Former Allied Signal Fibers Plant
Hopewell, VA**

Date: 1/27/2017
Project No.
02.2098007.00

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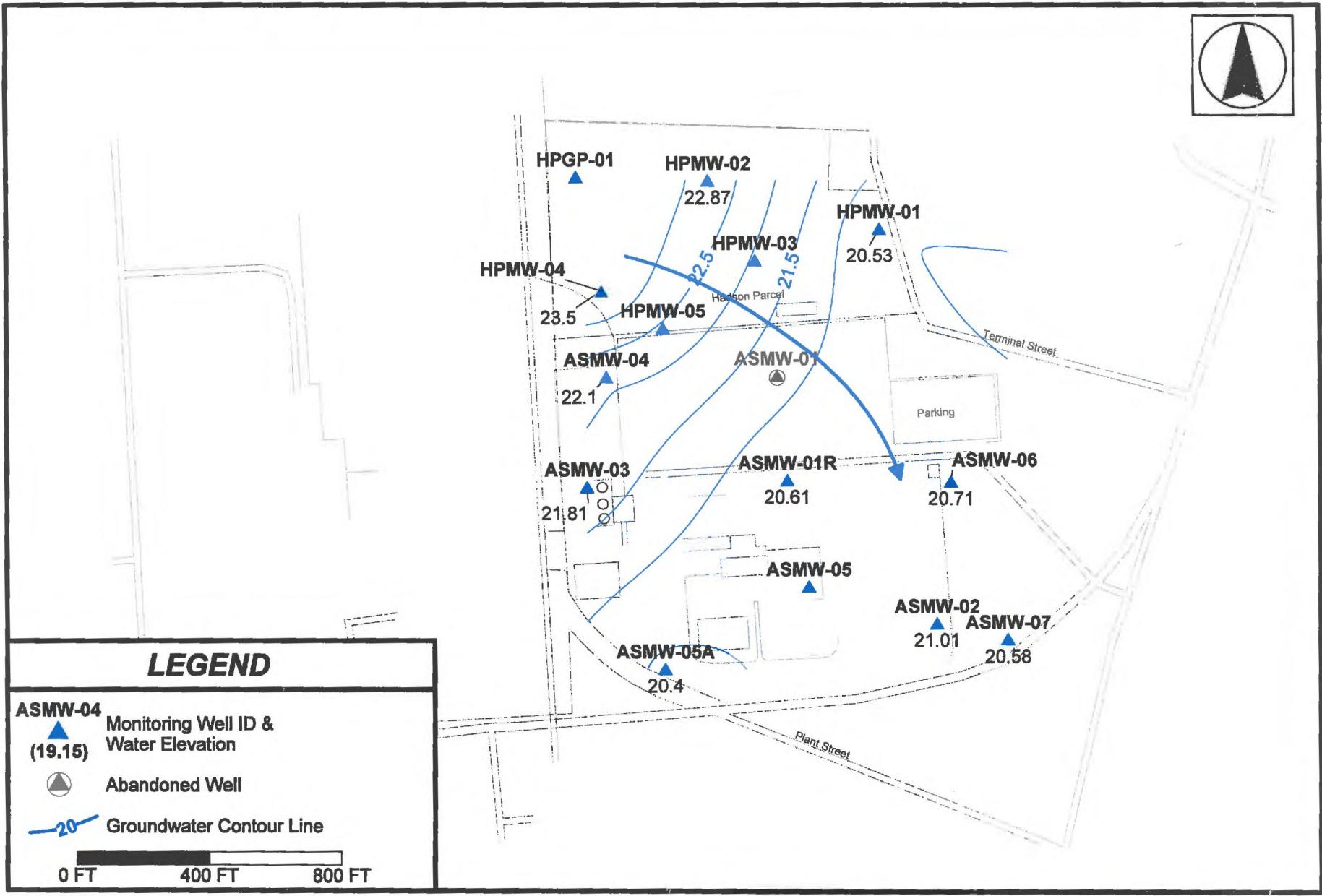


Figure 2
Potentiometric Surface Map

Former Allied Signal Fibers Plant
Hopewell, VA

Date: 1/27/2017
Project No.
02.2098007.00

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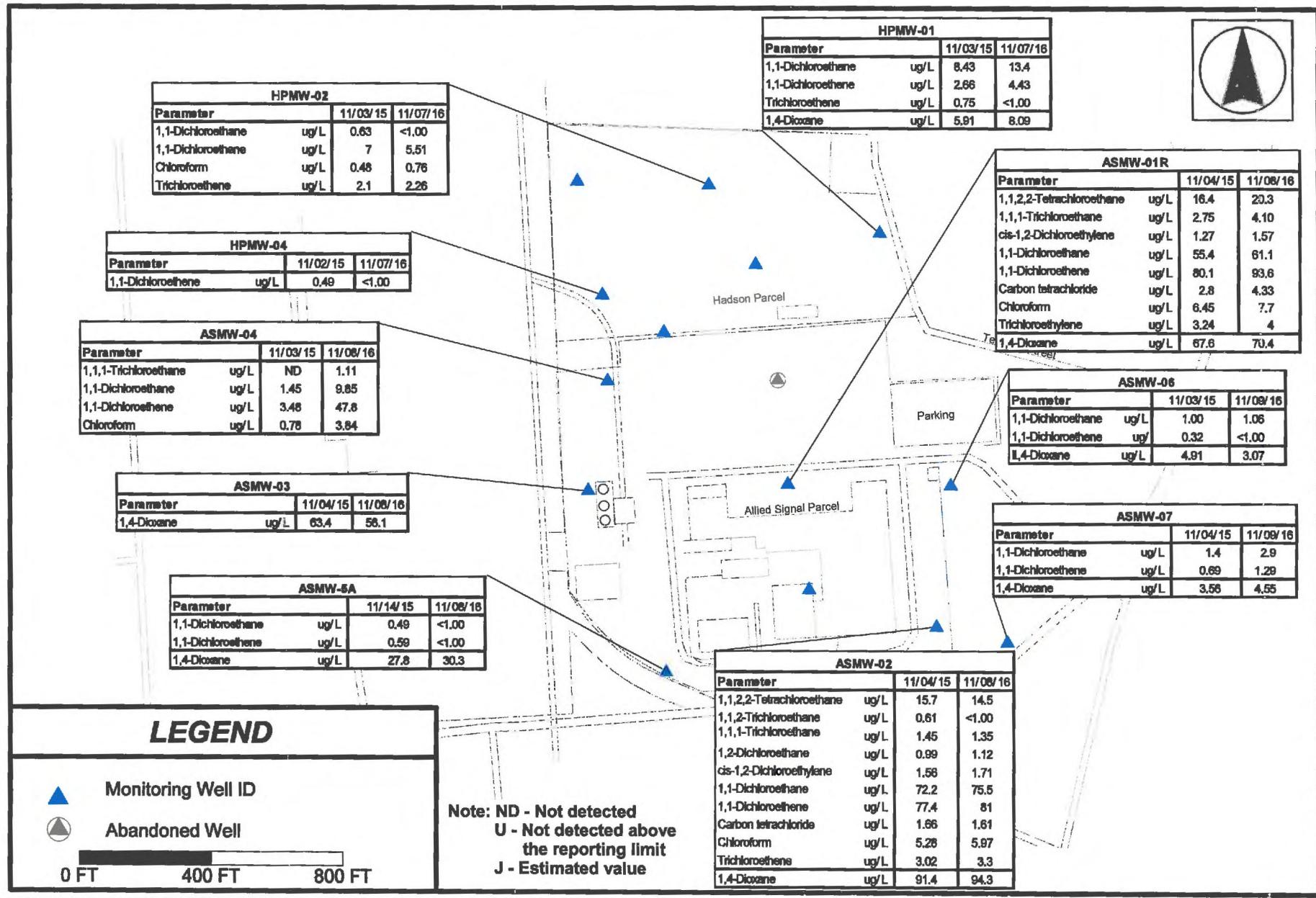


Figure 3
Detected Constituents

Former Allied Signal Fibers Plant
Hopewell, VA

Date: 01/23/2017
Project No.
02.20980007.00

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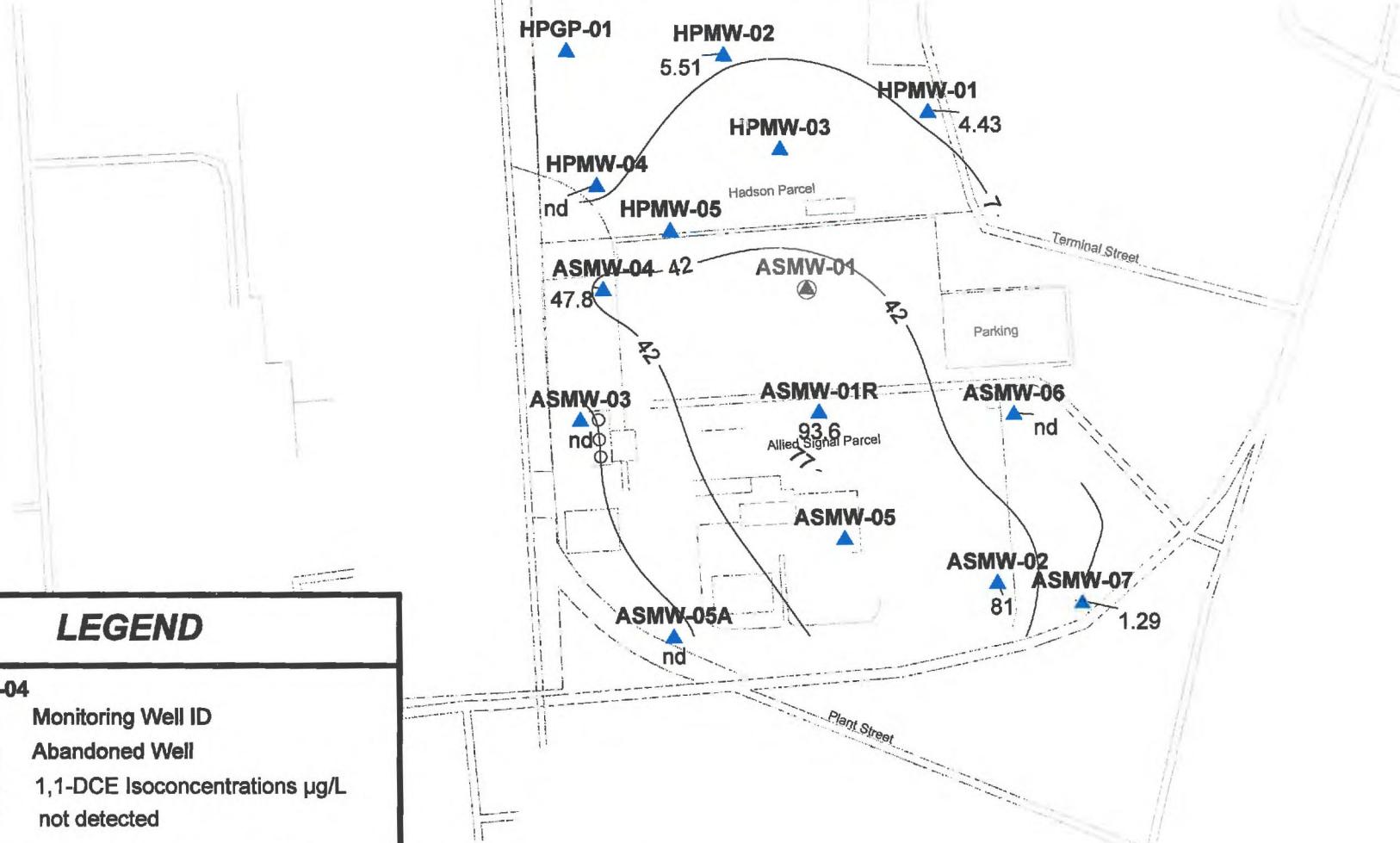
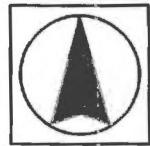


Figure 4
1,1-DCE Isoconcentration Map

**Former Allied Signal Fibers Plant
Hopewell, VA**

Date: 01/27/2016
Project No.
02.2098007.00

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1,1-DICHLOROETHENE CONCENTRATION

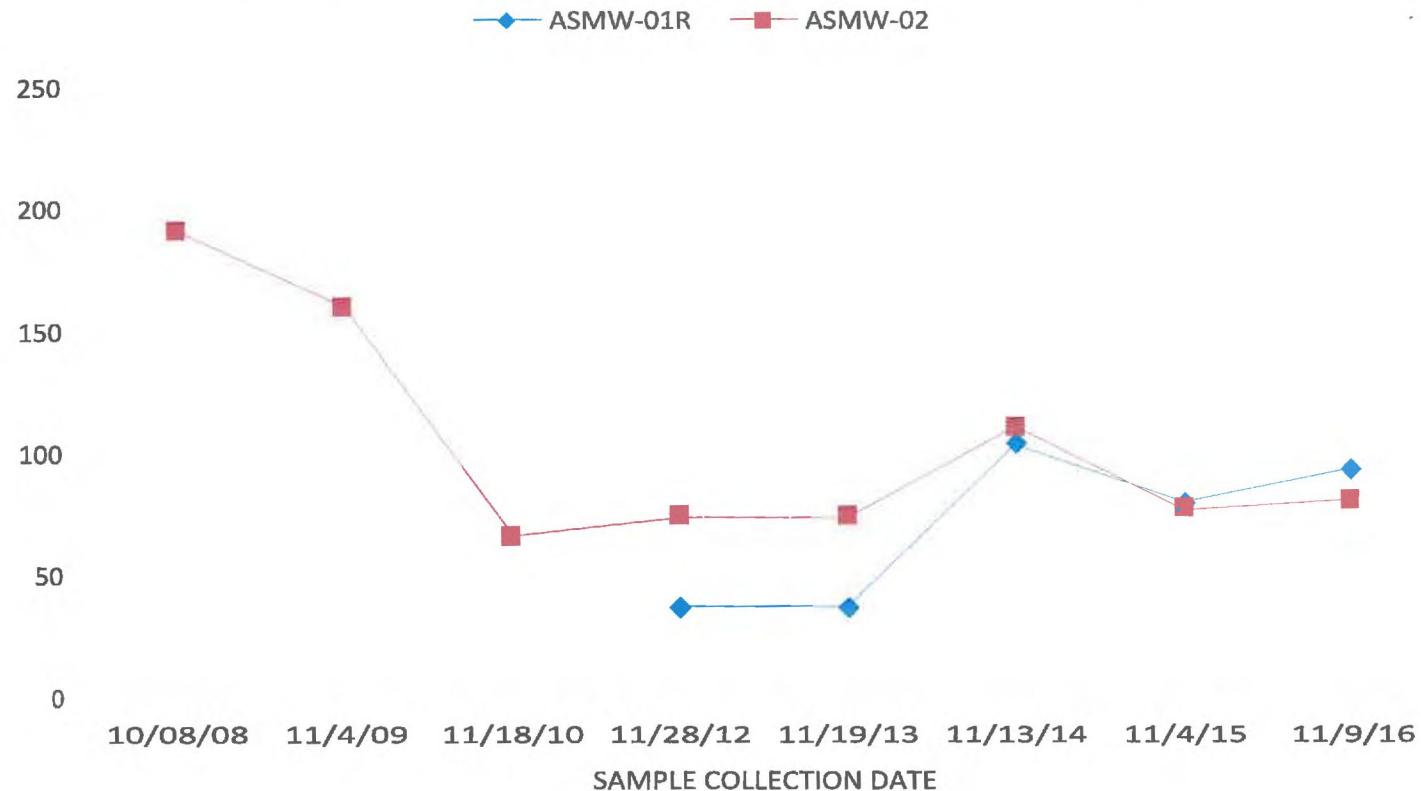


Figure 5

Former Allied Signal Fibers Plant
1,1-Dichloroethene Historic Concentrations Hopewell, VA

Date: 01/27/2016
Project No.
02.20980007.00

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Table 1: Summary of Groundwater Sampling Results

Parameter	Method	Station ID	CVOC	ASMW-01	ASMW-02	ASMW-03	ASMW-04	ASMW-5A	ASMW-06	ASMW-07	HPMW-01	HPMW-01	HPMW-02	HPMW-04
		Sample ID	MCLs	ASMW-01	ASMW-02	ASMW-03	ASMW-04	ASMW-5A	ASMW-06	ASMW-07	DUP-1	HPMW-01	HPMW-02	HPMW-04
		Date		10/08/08	10/08/08	10/08/08	10/08/08	10/08/08	10/08/08	10/07/08	10/08/08	10/08/08	10/07/08	10/07/08
Volatile Organic Compounds														
Ethane Dechlorination Series														
1,1,2,2-Tetrachloroethane	SW8260B	µg/L	--	4.4	30.4	0.3 U								
1,1,2-Trichloroethane	SW8260B	µg/L	5	1	1.7	0.2 U								
1,1,1-Trichloroethane	SW8260B	µg/L	200	1.7	2.6	0.2 U	2.9	0.2 U						
1,2-Dichloroethane	SW8260B	µg/L	5	1.5	1.6	0.3 U	0.4 J	0.3 U	0.3 U	0.3 U				
1,1-Dichloroethane	SW8260B	µg/L	--	159	215	0.2 U	3.7	1.9	0.2 U	0.7 J	45.1	47.1	2.9	0.2 U
1,1-Dichloroethene	SW8260B	µg/L	7	96.4	191	0.6 J	22.3	3.6	0.2 U	0.8 J	21.4	22	23.4	2
Chloroethane	SW8260B	µg/L	--	0.5 J	0.2 U									
Methane Dechlorination Series														
Carbon tetrachloride	SW8260B	µg/L	5	0.8 J	5.3	0.2 U								
Chloroform	SW8260B	µg/L	--	2.4 U	8 U	1 U	1.3 U	1 U	0.2 U	0.2 U	1 U	1 U	1 U	0.2 U
Ethene Dechlorination Series														
Trichloroethylene	SW8260B	µg/L	5	2.3	6.6	0.2 U	0.9 J	1 J	2.1	0.2 U				
cis-1,2-Dichloroethylene	SW8260B	µg/L	70	0.6 J	4.4	0.2 U	0.7 J	0.7 J	0.2 U	0.2 U				
trans-1,2-Dichloroethylene	SW8260B	µg/L	100	0.2 U	0.5 J	0.2 U								
Vinyl chloride	SW8260B	µg/L	2	0.2 J	0.5 J	0.2 U								
MNA Constituents														
Nitrate	Calculated	mg/L	--	18	0.9	8.7	4.4	13.2	0.1 U	0.6	NA	0.1 U	69	6.5
Nitrite	SM18/4500-NO2 B	mg/L	--	0.05 U	NA	0.05 U	0.05 U	0.05 U						
Nitrate+Nitrite	SM18/4500-NO3 F	mg/L	--	18	0.9	8.7	4.4	13.2	0.1 U	0.6	NA	0.1 U	69	6.5
Ferrous Iron		mg/L	--	0.12	0.41	0.35	0.11	0.44	0.27	0.62	NA	0.74	0	0.24
Sulfate	EPA300.0/R2.1	mg/L	--	1250 J	920 J	158 J	21 J	414 J	130 J	503 J	NA	384 J	343 J	75.2 J
Sulfide	SM18/4500-S2 E	mg/L	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	1 U	1 U	1 U
Chloride	EPA300.0/R2.1	mg/L	--	32.7 J	63.4 J	42.3 J	825 J	43.8 J	78.6 J	40.9 J	NA	69.7 J	85.2 J	15.9 J
Ammonia		mg/L	--	NA										
Alkalinity	SM18/2320B	mg/L	--	106	19	5 U	83.6	5 U	125	33.2	NA	89	33	38
Total Organic Carbon (TOC)	SW9060	mg/L	--	1.9	2.8	1 U	1.1	1.3	3.9	2.1	NA	2	1.5	1 U
Dissolved Oxygen (DO)	Field Measurement	mV	--	0.71	0.56	0.48	1.0	0.51	0.61	0.57	NA	0.7	329.4	4.1
Oxidation Reduction Potential	Field Measurement	mg/L	--	51.4	138.6	146.1	137	136.9	75	177	NA	47.1	1.05	84.1
Turbidity	Field Measurement	NTU	--	>999	468	213	610	>999	45.1	>999	NA	81.4	>999	>999
pH	Field Measurement	STU	--	6.21	4.81	4.31	5.91	4.52	5.9	5.19	NA	5.78	5.58	5.64
Specific Conductance	Field Measurement	µS/cm	--	2722	1045	578	2864	1068	771	1,350	NA	1094	1574	325
Dissolved Gases														
Methane	RSK-175	µg/L	--	4.8	36.9	0.5 U	0.5 U	8.1	0.5 U	0.5 U	NA	53.6	0.5 U	0.5 U
Ethylene	RSK-175	µg/L	--	0.5 U	NA	0.5 U	0.5 U	0.5 U						
Ethane	RSK-175	µg/L	--	0.5 U	NA	0.5 U	0.5 U	0.5 U						
Dioxane														
1,4-Dioxane	SW8260B	µg/L	--	108	119	137	20 U	64.6	20 U	20 U	27.6 J	28.1 J	20 U	20 U

Notes:

U - Not detected above the listed reporting limit

J - Estimated value

UJ - Estimated reporting limit

NA - Not analyzed

STU - Standard pH units

Results are validated

Table 1: Summary of Groundwater Sampling Results

Parameter	Method	Station ID	CVOC	ASMW-01	ASMW-02	ASMW-03	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02	HPMW-02	HPMW-04	
		Sample ID	MCLs	Date	ASMW-01	ASMW-02	ASMW-03	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02	110409 DUP	HPMW-04
			Units	11/4/09	11/4/09	11/3/09	11/3/09	11/3/09	11/4/09	11/4/09	11/4/09	11/4/09	11/4/09	11/4/09	11/4/09
Volatile Organic Compounds															
Ethane Dechlorination Series															
1,1,2,2-Tetrachloroethane	SW8260B	µg/L	--	3.8	29.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,1,2-Trichloroethane	SW8260B	µg/L	5	1	1.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,1-Trichloroethane	SW8260B	µg/L	200	1.3	2.4	0.2 U	0.7 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.8	1.8	0.2 U
1,2-Dichloroethane	SW8260B	µg/L	5	1.4	1.4	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 J	0.3 U	0.3 U	0.3 U
1,1-Dichloroethane	SW8260B	µg/L	--	126	178	0.2 U	3.8	1.4	0.2 U	0.8 J	32.9	2.1	2.3	0.2 U	
1,1-Dichloroethene	SW8260B	µg/L	7	71.1	160	0.3 J	22.3	2.3	0.2 U	0.8 J	15.3	19.4	21.9	1.1	
Chloroethane	SW8260B	µg/L	--	0.3 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methane Dechlorination Series					--										
Carbon tetrachloride	SW8260B	µg/L	5	0.8 J	4.1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloroform	SW8260B	µg/L	--	1.9	7.9	0.5 J	1.5	0.7 J	0.2 U	0.2 U	0.5 J	1 J	1 J	1 J	0.2 U
Ethene Dechlorination Series					--										
Trichloroethylene	SW8260B	µg/L	5	1.6	6	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 J	2.6	2.7	0.2 U	
cis-1,2-Dichloroethylene	SW8260B	µg/L	70	0.8 J	4.1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 J	0.2 U	0.2 U	0.2 U	
trans-1,2-Dichloroethylene	SW8260B	µg/L	100	0.2 U	0.4 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	
Vinyl chloride	SW8260B	µg/L	2	0.2 U	0.4 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	
MNA Constituents															
Nitrate	Calculated	mg/L	--	1.5	1.1	7	4.3	12	0.1 U	0.7	0.1 U	77.6	NA	9.2	
Nitrite	SM18/4500-NO2 B	mg/L	--	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U					
Nitrate+Nitrite	SM18/4500-NO3 F	mg/L	--	1.5	1.1	7	4.3	12	0.1 U	0.7	0.1 U	77.6	NA	9.2	
Ferrous Iron		mg/L	--	0.59	0.3	0.23	0.24	0.47	0.46	0.2	0.98	0.23	NA	0.05	
Sulfate	EPA300.0/R2.1	mg/L	--	1230	841	153	21	352	140	424	307	282	NA	57.3	
Sulfide	SM18/4500-S2 E	mg/L	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Chloride	EPA300.0/R2.1	mg/L	--	28.7	62.1	38.7	815	38.8	73.3	31.1	57	96.8	NA	18	
Ammonia		mg/L	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Alkalinity	SM18/2320B	mg/L	--	100	16.5	5 U	85	5 U	120	16.5	38.4	22	NA	35.8	
Total Organic Carbon (TOC)	SW9060	mg/L	--	1.7	3	1.1	1.4	1.3	4.3	2	1.7	1 U	NA	2.6	
Dissolved Oxygen (DO)	Field Measurement	mV	--	0	0	3.97	0	0	0	5.06	0	577	NA	3.9	
Oxidation Reduction Potential	Field Measurement	mg/L	--	128	199	383	235	390	84	28	128	0	NA	180	
Turbidity	Field Measurement	NTU	--	0	181	42.4	491	316	50.7	174	0	276	NA	0	
pH	Field Measurement	STU	--	5.70	4.7	4.44	8.15	3.57	5.89	4.91	5.7	4.66	NA	5.1	
Specific Conductance	Field Measurement	µS/cm	--	982	1990	528	2750	1000	768	1,210	982	1540	NA	350	
Dissolved Gases															
Methane	RSK-175	µg/L	--	3.8	49.0	2.9	0.5 U	0.7	0.5 U	0.5 U	24.2	2.2	NA	0.5 U	
Ethylene	RSK-175	µg/L	--	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	
Ethane	RSK-175	µg/L	--	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	
Dioxane															
1,4-Dioxane	SW8260B	µg/L	--	94.3	126	117	4 U	45	4 UJ	5.44	18	4 U	NA	4 U	

Notes:

U - Not detected above the listed reporting limit

J - Estimated value

UJ - Estimated reporting limit

NA - Not analyzed

STU - Standard pH units

Results are validated

Table 1: Summary of Groundwater Sampling Results

Parameter	Method	Station ID	CVOC	ASMW-01	ASMW-01	ASMW-02	ASMW-03	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02	HPMW-04								
		Sample ID	MCLs	ASMW-01	11/18/10 DUP	ASMW-02	11/18/10	ASMW-03	11/18/10	ASMW-04	11/18/10	ASMW-05A	11/18/10	ASMW-06	11/18/10	ASMW-07	11/18/10	HPMW-01	11/18/10	HPMW-02	11/18/10	HPMW-04
Volatile Organic Compounds																						
Ethane Dechlorination Series																						
1,1,2,2-Tetrachloroethane	SW8260B	µg/L	-	3.2	3	10.3	8.5	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.3	
1,1,2-Trichloroethane	SW8260B	µg/L	5	0.8	J	0.8	J	0.8	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	
1,1,1-Trichloroethane	SW8260B	µg/L	200	0.8	J	0.9	J	0.9	U	0.2	U	0.8	J	0.2	U	0.2	U	0.2	U	1.6	0.2	
1,2-Dichloroethane	SW8260B	µg/L	5	0.8	J	0.9	J	0.7	J	0.3	U	0.3	U	0.3	U	0.3	U	0.3	U	0.2	U	
1,1-Dichloroethane	SW8260B	µg/L	-	62.3		93.9	82.7		0.2	U	3.5		1.3		0.3		0.5	J	17.8	3.2	0.2	
1,1-Dichloroethene	SW8260B	µg/L	7	53.8		50.8	65.8		0.3	J	19.1		2.0		0.2		0.4	J	8.1	14.8	0.6	
Chloroethane	SW8260B	µg/L	-	0.2	J	0.3	J	0.2	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	
Methane Dechlorination Series																						
Carbon tetrachloride	SW8260B	µg/L	5	0.7	J	0.8	J	0.9	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	
Chloroform	SW8260B	µg/L	--	1.8		1.9		3.4		0.4	J	1.3		0.6	J	0.2	U	0.3	J	0.7	J	0.2
Ethene Dechlorination Series																						
Trichloroethylene	SW8260B	µg/L	5	1.7		1.7		2.9		0.2	U	0.2	U	0.2	U	0.2	U	0.2	J	1.2	0.2	
cis-1,2-Dichloroethylene	SW8260B	µg/L	70	0.5	J	0.4	J	2.0		0.2	U	0.2	U	0.2	U	0.2	U	0.4	J	0.2	U	
trans-1,2-Dichloroethylene	SW8260B	µg/L	100	0.2	U	0.2	U	0.2	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	
Vinyl chloride	SW8260B	µg/L	2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	
MNA Constituents																						
Nitrate	Calculated	mg/L	--	1.6		NA	0.8	7.7	4.5	12.3	0.1	U	0.7	0.1	U	81		10.1				
Nitrite	SM18/4500-NO2 B	mg/L	--	0.05	U	NA	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	
Nitrate+Nitrite	SM18/4500-NO3 F	mg/L	--	1.6		NA	0.8	7.7	4.5	12.3	0.1	U	0.7	0.1	U	81		10.1				
Ferrous Iron		mg/L	--	0.07		NA	0.67	0.49	0.18	0	0.64		0	1.6		0.3	0.32					
Sulfate	EPA300.0/R2.1	mg/L	--	1340		NA	1590	157	22.7	436	108		812	302		821	66.4					
Sulfide	SM18/4500-S2 E	mg/L	--	1	U	NA	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	
Chloride	EPA300.0/R2.1	mg/L	--	29.4		NA	69.8	35.1	899	40.5	72.8		38	46.1		117	16.9					
Ammonia		mg/L	--	NA		NA		NA		NA		NA		NA		NA		NA				
Alkalinity	SM18/2320B	mg/L	--	86.6		NA	6	5	U	83.8	5	U	121	5	U	49.8	5	U	34.4			
Total Organic Carbon (TOC)	SW9080	mg/L	--	1.9		NA	2.8	1.2	1	U	1.6	4.4	2.4	1.9		3.1		1	U			
Dissolved Oxygen (DO)	Field Measurement	mV	--	2.61		NA	2.48	3.87	2.06	2.71	2.11		2.98	2.06		549		8.73				
Oxidation Reduction Potential	Field Measurement	mg/L	--	144		NA	163	270	114	205	63		168	114		1.32	104					
Turbidity	Field Measurement	NTU	--	431		NA	612	457	727	2000	99.1		951	102		2000	358					
pH	Field Measurement	STU	--	5.98		NA	4.93	4.23	5.8	4.34	5.8		4.89	5.56		4.34	5.63					
Specific Conductance	Field Measurement	µS/cm	--	2460		NA	1700	505	2730	1030	700		1,187	781		2000	338					
Dissolved Gases																						
Methane	RSK-175	µg/L	--	0.8		NA	19.3	4.8	0.5	U	25.1	0.5	U	0.5	U	20.9	6.2	0.5	U			
Ethylene	RSK-175	µg/L	--	0.5	U	NA	2.5	U	0.5	U	2.5	U	0.5	U	2.5	U	0.5	U	0.5	U		
Ethane	RSK-175	µg/L	--	0.5	U	NA	2.5	U	0.5	U	2.5	U	0.5	U	2.5	U	0.5	U	0.5	U		
Dioxane																						
1,4-Dioxane	SW8260B	µg/L	--	87.7		87.2	81.1	83.8	4	U	43	4	U	9.26	12.4	4	U					

Notes:

U - Not detected above the listed reporting limit

J - Estimated value

UJ - Estimated reporting limit

NA - Not analyzed

STU - Standard pH units

Results are validated

Table 1: Summary of Groundwater Sampling Results

Parameter	Method	Station ID	CVOC	Sample ID	MCLs	ASMW-01	ASMW-02	ASMW-03	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02	HPMW-04
						Date	ASMW-01	ASMW-02	ASMW-03	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02
Volatile Organic Compounds															
Ethane Dechlorination Series															
1,1,2,2-Tetrachloroethane	SW8260B	µg/L	--	0.8 J	12.4	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U				
1,1,2-Trichloroethane	SW8260B	µg/L	5	2.5	0.7 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
1,1,1-Trichloroethane	SW8260B	µg/L	200	0.7 J	1.1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
1,2-Dichloroethane	SW8260B	µg/L	5	0.9 J	0.7 J	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U				
1,1-Dichloroethane	SW8260B	µg/L	--	104	103	0.2 U	4.8	1.3	0.2	0.5	18.8	2.2	0.2 U		
1,1-Dichloroethene	SW8260B	µg/L	7	58.2	89.5	0.3 J	27.7	2.0	0.2 U	0.4	7.8	12.8	0.7 J		
Chloroethane	SW8260B	µg/L	--	0.4 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methane Dechlorination Series						--									
Carbon tetrachloride	SW8260B	µg/L	5	0.9 J	1.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
Chloroform	SW8260B	µg/L	--	2.0	4.7	0.3 J	1.8	0.5	0.2 U	0.4 U	0.2	0.7 J	0.3 U		
Ethene Dechlorination Series						--									
Trichloroethylene	SW8260B	µg/L	5	1.8	3.3	0.2 U	0.2 U	0.2 U	0.5 U	0.7 U	0.4	1.7	0.6 U		
cis-1,2-Dichloroethylene	SW8260B	µg/L	70	0.4 J	2.2	0.2 U	0.2 U	0.2 U	0.3 U	0.5 U	0.4	0.2 U	0.4 U		
trans-1,2-Dichloroethylene	SW8260B	µg/L	100	0.2 U	0.3 J	0.2 U	0.2 U	0.2 U	0.4 U	0.6 U	0.2 U	0.2 U	0.5 U		
Vinyl chloride	SW8260B	µg/L	2	0.2 U	0.2 J	0.2 U	0.2 U	0.2 U	0.6 U	0.8 U	0.2 U	0.2 U	0.7 U		
MNA Constituents															
Nitrate	Calculated	mg/L	--	1.6	0.7	7.2	4.6	13.1	0.1 U	0.8	1 U	41.9	6.6		
Nitrite	SM18/4500-NO2 B	mg/L	--	<0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.5 U	0.05 U	0.05 U	0.05 U		
Nitrate+Nitrite	SM18/4500-NO3 F	mg/L	--	1.6	0.7	7.2	4.6	13.1	0.1 U	0.8	1 U	41.9	6.6		
Ferrous Iron		mg/L	--				0.24				2.42	0.29	0.2		
Sulfate	EPA300.0/R2.1	mg/L	--	1140	820	122	26.0	408	115	485	291	1190	65.2		
Sulfide	SM18/4500-S2 E	mg/L	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloride	EPA300.0/R2.1	mg/L	--	31.3	61.9	33.2	866	39.6	69.4	41.4	46.3	108	19.1		
Ammonia		mg/L	--												
Alkalinity	SM18/2320B	mg/L	--	113	30.8	5 U	84.3	5 U	118	0.5 U	50.8	5 U	32.3		
Total Organic Carbon (TOC)	SW9080	mg/L	--	1.7		1.2	1 U	1.2	2.8	1.8	1.6	1.4	2.7		
Dissolved Oxygen (DO)	Field Measurement	mV	--	0.43	1.4	0.64	0.8	0.34	0.4	0.6	0.55	486	4.4		
Oxidation Reduction Potential	Field Measurement	mg/L	--	171	182	243	172	300	73	248	107	0.7	184		
Turbidity	Field Measurement	NTU	--	126	294	129	870	378	13.2	898	116	181	181		
pH	Field Measurement	STU	--	5.99	5.35	4.31	6.02	3.7	5.23	4.76	5.79	4.59	5.7		
Specific Conductance	Field Measurement	µS/cm	--	2.34	1770	460	2.78	960	680	1,153	0.791	2540	336		
Dissolved Gases															
Methane	RSK-175	µg/L	--	1.1	23.6	1.6	0.5 U	46	0.7	0.5 U	32.7	3.2	0.5 U		
Ethylene	RSK-175	µg/L	--	0.5 U	2.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U		
Ethene	RSK-175	µg/L	--	0.5 U	2.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U		
Dioxane															
1,4-Dioxane	SW8260B	µg/L	--	78.2	80.4	72.9	2 U	43.1	2.04	7.50	11.3	2 U	2 U		

Notes:

U - Not detected above the listed reporting limit

J - Estimated value

UJ - Estimated reporting limit

NA - Not analyzed

STU - Standard pH units

Results are validated

Table 1: Summary of Groundwater Sampling Results

Parameter	Method	Station ID	CVOC	ASMW-01R	ASMW-02	ASMW-03	ASMW-03 Duplicate	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02	HPMW-04
		Sample ID	MCLs	ASMW-01R	ASMW-02	ASMW-03	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02	HPMW-04	
		Date		11/28/12	11/28/12	11/28/12	11/28/12	11/28/12	11/28/12	11/28/12	11/28/12	11/27/12	11/28/12	
Volatile Organic Compounds														
Ethane Dechlorination Series														
1,1,2,2-Tetrachloroethane	SW8260B	µg/L	—	14.6	10.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	SW8260B	µg/L	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	SW8260B	µg/L	200	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	SW8260B	µg/L	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	SW8260B	µg/L	--	26.4	93.4	<1.0	<1.0	2.4	<1.0	<1.0	<1.0	15.2	1.1	<1.0
1,1-Dichloroethene	SW8260B	µg/L	7	37.1	73.9	<1.0	<1.0	13.2	1.8	<1.0	<1.0	8	4.7	<1.0
Chloroethane	SW8260B	µg/L	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methane Dechlorination Series														
Carbon tetrachloride	SW8260B	µg/L	5	2.5	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	SW8260B	µg/L	—	5.6	3.7	<1.0	<1.0	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethene Dechlorination Series														
Trichloroethylene	SW8260B	µg/L	5	3.1	3.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0
cis-1,2-Dichloroethylene	SW8260B	µg/L	70	<1.0	1.9	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethylene	SW8260B	µg/L	100	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	SW8260B	µg/L	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MNA Constituents														
Nitrate	Calculated	mg/L	—	1.1	0.7	7.4	7.4	4.5	8	<0.1	0.5	<0.1	40.5	3.5
Nitrite	SM18/4500-NO2 B	mg/L	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrate+Nitrite	SM18/4500-NO3 F	mg/L	—	1.1	0.7	7.4	7.4	4.5	8	<0.1	0.5	<0.1	40.5	3.5
Ferrous Iron		mg/L	—	0.52	0.86	0.41	0.41	0.31	1.1	0.48	0.53	0.48	0	0.25
Sulfate	EPA300.0/R2.1	mg/L	—	823	812	146	120	27.9	335	115	416	258	1190	62.2
Sulfide	SM18/4500-S2 E	mg/L	—	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride	EPA300.0/R2.1	mg/L	—	40.2	64.6	27.3	30.4	780	33.5	62.9	32.1	44.9	108	20.4
Ammonia		mg/L	—											
Alkalinity	SM18/2320B	mg/L	—	190	7.7	<5.0	<5.0	86.2	<5.0	122	12.4	50.6	<5.0	35
Total Organic Carbon (TOC)	SW9060	mg/L	—	4.2	3.3	1.3*	1.3	1.6*	1.8	4.8	2.5	2.6	4.3 J	1.1
Dissolved Oxygen (DO)	Field Measurement	mV	—	0	0	0	0	4.21	0	0	0	0	571	6.5
Oxidation Reduction Potential	Field Measurement	mg/L	—	141	264	387	387	224	385	125	290	122	2.77	254
Turbidity	Field Measurement	NTU	—	51.7	253	154	154	730	719	0	584	0	1000	16.3
pH	Field Measurement	STU	—	6.49	5.07	4.59	4.59	6.65	4.67	6.19	5.2	5.99	4.27	5.95
Specific Conductance	Field Measurement	µS/cm	—	1.45	1780	407	407	2.67	835	605	0.95	0.643	2980	0.273
Dissolved Gases														
Methane	RSK-175	µg/L	—	11.7	22.2	4.5	5.6	0.5 U	16.9	0.5 U	0.5 U	29.6	5.6	0.5 U
Ethylene	RSK-175	µg/L	—	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Ethane	RSK-175	µg/L	—	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Dioxane														
1,4-Dioxane	SW8260B	µg/L	—	48.6	101 J	77.5	82.6 J	<2.0	36.6 J	2.09	4.9	10.9	<2.0	<2.0

Notes:

U - Not detected above the listed reporting limit

J - Estimated value

UJ - Estimated reporting limit

NA - Not analyzed

STU - Standard pH units

Results are validated

Table 1: Summary of Groundwater Sampling Results

Parameter	Method	Station ID	CVOC	ASMW-01R	ASMW-02	ASMW-03	ASMW-03	Duplicate	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02	HPMW-04	
		Sample ID	MCLs	Date	ASMW-01R	ASMW-02	ASMW-03	11/19/13	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02	HPMW-04	
Volatile Organic Compounds																
Ethane Dechlorination Series																
1,1,2,2-Tetrachloroethane	SW8260B	µg/L	--	14.6	10.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,1,2-Trichloroethane	SW8260B	µg/L	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,1,1-Trichloroethane	SW8260B	µg/L	200	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,2-Dichloroethane	SW8260B	µg/L	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,1-Dichloroethane	SW8260B	µg/L	--	26.4	83.4	<1.0	<1.0	4.11	<1.0	<1.0	<1.0	11.8	1.07	<1.0	<1.0	
Chloroethane	SW8260B	µg/L	7	37.1	73.9	<1.0	<1.0	24.7	1.31	<1.0	<1.0	4.48	11	<1.0	<1.0	
Methane Dechlorination Series																
Carbon tetrachloride	SW8260B	µg/L	5	2.5	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chloroform	SW8260B	µg/L	--	5.6	3.7	<1.0	<1.0	1.77	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Ethene Dechlorination Series																
Trichloroethylene	SW8260B	µg/L	5	3.1	3.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.22	<1.0	
cis-1,2-Dichloroethylene	SW8260B	µg/L	70	0.5	2.21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
trans-1,2-Dichloroethylene	SW8260B	µg/L	100	0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Vinyl chloride	SW8260B	µg/L	2	0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
MNA Constituents																
Nitrate	Calculated	mg/L	--	1.6	0.97	7.34	7.44	4.75	7.91	<0.15	0.65	<0.15	33.9	2.74		
Nitrite	SM18/4500-NO2 B	mg/L	--	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Nitrate+Nitrite	SM18/4500-NO3 F	mg/L	--	1.6	0.97	7.34	7.44	4.75	7.91	<0.1	0.65	0.1	33.9	2.74		
Ferrous Iron		mg/L	--	0.07	1.65	0.28	0.28	0.02	0.23	0.68	0	1.23	0	0.12		
Sulfate	EPA300.0/R2.1	mg/L	--	1340	756	137	120	23.9	268	108	477	234	287	54.2		
Sulfide	SM18/4500-S2 E	mg/L	--	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chloride	EPA300.0/R2.1	mg/L	--	29.4	47.4	22.8	24.4	705	30.3	62.9	34.2	37.9	62.4	21.5		
Ammonia		mg/L	--	NA	0	0	0	0	0	0	0	0	0	0		
Alkalinity	SM18/2320B	mg/L	--	86.6	5.4	<5.0	<5.0	83	<5.0	136	13.1	63	<5.0	35.6		
Total Organic Carbon (TOC)	SW9080	mg/L	--	1.9	2.5	<1.0	<1.0	3.5	1.4	4.2	2	2.3	1.9 J	<1.0		
Dissolved Oxygen (DO)	Field Measurement	mV	--	2.61	0.77	0.51	0.51	0.76	0.32	0.29	0.45	0.38	753	5.38		
Oxidation Reduction Potential	Field Measurement	mg/L	--	144	452	608	608	450	591	305	504	337	0.38	447		
Turbidity	Field Measurement	NTU	--	431	5999	151	151	193	1284	314	2000	232	2000	422		
pH	Field Measurement	STU	--	5.98	4.98	4.65	4.65	6.01	4.61	6.06	5.09	5.86	5.13	5.83		
Specific Conductance	Field Measurement	µS/cm	--	2480	1.78	0.443	0.44	2.65	0.807	0.732	1.15	0.707	1.083	0.301		
Dissolved Gases																
Methane	RSK-175	µg/L	--	0.8	J	17.3	J	2.6	J	0.5 UJ	115	J	1.2	J	0.5 UJ	
Ethylene	RSK-175	µg/L	--	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	
Ethane	RSK-175	µg/L	--	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	
Dioxane																
1,4-Dioxane	SW8260B	µg/L	--	87.7	J	111	J	56.7	J	62.1	J	<2.0	26.2	J	2.32	J

Notes:

U - Not detected above the listed reporting limit

J - Estimated value

UJ - Estimated reporting limit

NA - Not analyzed

STU - Standard pH units

Results are validated

Table 1: Summary of Groundwater Sampling Results

Parameter	Method	Station ID	CVOC	ASMW-01R	ASMW-02	ASMW-03	ASMW-03	Duplicate	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02	HPMW-04
		Sample ID	MCLs	ASMW-01R	ASMW-02	ASMW-03	ASMW-03		ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02	HPMW-04
		Date		11/13/14	11/13/14	11/13/14	11/13/14		11/13/14	11/13/14	11/13/14	11/13/14	11/12/14	11/12/14	11/12/14
Volatile Organic Compounds															
Ethane Dechlorination Series															
1,1,2,2-Tetrachloroethane	SW8260B	µg/L	—	21.7	18.1	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00
1,1,2-Trichloroethane	SW8260B	µg/L	5	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00
1,1,1-Trichloroethane	SW8260B	µg/L	200	3.9	2.13	<1.00	<1.00	2.78	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00
1,2-Dichloroethane	SW8260B	µg/L	5	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00
1,1-Dichloroethane	SW8260B	µg/L	—	63.4	109	<1.00	<1.00	10.4	<1.00	<1.00	<1.00	11.1	1.46	<1.00	
1,1-Dichloroethene	SW8260B	µg/L	7	104	111	<1.00	<1.00	59.8	1.24	<1.00	<1.00	3.47	11.2	2.44	
Chloroethane	SW8260B	µg/L	—	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00
Methane Dechlorination Series															
Carbon tetrachloride	SW8260B	µg/L	5	4.25	3.33	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00
Chloroform	SW8260B	µg/L	—	8.1	U	6.82	U	<1.00	4.55	U	<1.00	<1.00	<1.0	<1.00	<1.00
Ethene Dechlorination Series															
Trichloroethylene	SW8260B	µg/L	5	4.81	4.1	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	3.94	<1.00
cis-1,2-Dichloroethylene	SW8260B	µg/L	70	1.35	1.86	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethylene	SW8260B	µg/L	100	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Vinyl chloride	SW8260B	µg/L	2	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00
MNA Constituents															
Nitrate	Calculated	mg/L	—	1.34	1.51	10.2	9.18	6	12.8	<0.15	1.01	0.48	78.1	8.86	
Nitrite	SM18/4500-NO2 B	mg/L	—	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrate+Nitrite	SM18/4500-NO3 F	mg/L	—	1.34	1.51	10.2	9.19	6	12.9	<0.10	1.01	0.48	78.1	8.86	
Ferrous Iron		mg/L	—	0	0.13	1.08	1.08	0.37	0.23	0.17	0	1.3	0.2	0.34	
Sulfate	EPA300.0/R2.1	mg/L	—	742	813	140	119	342	302	112	488	207	376	53.2	
Sulfide	SM18/4500-S2 E	mg/L	—	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.00	<1.00	<1.00
Chloride	EPA300.0/R2.1	mg/L	—	36.5	59.5	26.6	24	78	32	65	46.6	39.9	70.1	24.6	
Ammonia		mg/L	—												
Alkalinity	SM18/2320B	mg/L	—	168	<5.0	<5.0	<5.0	60.6	<5.0	111	44.4	49.2	21.1	41.2	
Total Organic Carbon (TOC)	SW9080	mg/L	—	2.4	2	<1.0	<1.0	1.4	1.2	4.2	1.8	2.8	1.8	<1.0	
Dissolved Oxygen (DO)	Field Measurement	mV	—	0	0.59	2.47	0.51	0.84	0	2.12	0	0.68	672	4.11	
Oxidation Reduction Potential	Field Measurement	mg/L	—	180	233	290	808	220	430	237	310	134	0.83	2.35	
Turbidity	Field Measurement	NTU	—	417	321	159	151	520	525	87.5	729	117	628	197	
pH	Field Measurement	STU	—	6.32	4.81	4.3	4.65	5.82	4.14	5.92	5.45	5.57	5.23	5.65	
Specific Conductance	Field Measurement	µS/cm	—	1.02	1.55	0.417	0.44	0.988	0.668	0.524	1	0.7	1.325	0.34	
Dissolved Gases															
Methane	RSK-175	µg/L	—	7.6	7.2	1.3	J	2.2	J	<0.5	63.1	<0.5	0.6	6.8	<0.5
Ethylene	RSK-175	µg/L	—	<0.5	<0.5	<0.5	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethane	RSK-175	µg/L	—	<0.5	<0.5	<0.5	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dioxane															
1,4-Dioxane	SW8260B	µg/L	—	90.3	J	121	58.5	J	82.1	<2.0	36.4	2.83	J	3.37	J

Notes:

U - Not detected above the listed reporting limit

J - Estimated value

UJ - Estimated reporting limit

NA - Not analyzed

STU - Standard pH units

Results are validated

Table 1: Summary of Groundwater Sampling Results

Parameter	Method	Station ID	CVOC Sample ID	MCLs	ASMW-01R	ASMW-02	ASMW-03	ASMW-03 Duplicate	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02	HPMW-04
				Date	11/4/15	11/4/15	11/4/15	11/4/15	11/3/15	11/4/15	11/3/15	11/4/15	11/3/15	11/3/15	11/2/15
Volatile Organic Compounds															
Ethane Dechlorination Series															
1,1,2,2-Tetrachloroethane	SW8260B	µg/L	--	16.4	15.7	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
1,1,2-Trichloroethane	SW8260B	µg/L	5	<1.00	0.81	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,1-Trichloroethane	SW8260B	µg/L	200	2.75	1.45	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloroethane	SW8260B	µg/L	5	<1.00	0.99	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethane	SW8260B	µg/L	--	55.4	72.2	<1.00	<1.00	1.45	0.49	1	1.4	8.43	0.83	<1.00	
1,1-Dichloroethene	SW8260B	µg/L	7	80.1	77.4	<1.00	<1.00	3.48	0.59	0.32	0.69	2.86	7	0.49	
Chloroethane	SW8260B	µg/L	--	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Methane Dechlorination Series															
Carbon tetrachloride	SW8260B	µg/L	5	2.8	1.66	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloroform	SW8260B	µg/L	--	6.45	5.28	<0.50	<0.50	0.78	<0.50	<0.50	<0.50	<0.50	<0.50	0.48	<0.50
Ethene Dechlorination Series															
Trichloroethylene	SW8260B	µg/L	5	3.24	3.02	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	0.75	2.1	<1.00
cis-1,2-Dichloroethylene	SW8260B	µg/L	70	1.27	1.58	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethylene	SW8260B	µg/L	100	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Vinyl chloride	SW8260B	µg/L	2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
MNA Constituents															
Nitrate	Calculated	mg/L	--	1.74	1.94	10.2	9.92	5.65	13.6	1.12	0.18	1.37	33.8	2.11	
Nitrite	SM18/4500-NO2 B	mg/L	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrate+Nitrite	SM18/4500-NO3 F	mg/L	--	1.74	1.94	10.2	9.92	5.65	13.6	1.12	0.18	1.37	33.8	2.11	
Ferrous Iron		mg/L	--	0.49	0.71	0.58	0	0	0.19	0.1	2.87	2.13	0.09	0.3	
Sulfate	EPA3000/R2.1	mg/L	--	542	728	122	119	44	240	133	508	289	218	53	
Sulfide	SM18/4500-S2 E	mg/L	--	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloride	EPA3000/R2.1	mg/L	--	38.8	48.7	25.1	23.8	13.4	35.4	80.8	86.8	58.8	74.4	27.8	
Ammonia		mg/L	--												
Alkalinity	SM18/2320B	mg/L	--	43	<5.0	<5.0	<5.0	<5.0	90	<5.0	129	<5.0	65	21	49
Total Organic Carbon (TOC)	SW9060	mg/L	--	2.3	2	1.2	1.8	5.2	1.2	4.5	2.2	3.5	1.6	1.1	
Dissolved Oxygen (DO)	Field Measurement	mV	--	53.3	3.76	94.1	94.1	6.36	7.4	7.07	18	4.9	0	8.43	
Oxidation Reduction Potential	Field Measurement	mg/L	--	215.7	257	282.8	282.8	287	352	31	267.2	145.3	0.544	237	
Turbidity	Field Measurement	NTU	--	74.3	0	0.5	0.5	206	0	0	889.2	103.9	0	0	
pH	Field Measurement	STU	--	5.41	6.22	5.06	5.06	7.29	5.11	7.58	5.11	5.68	5.33	6.39	
Specific Conductance	Field Measurement	µS/cm	--	1228	0	4	4	0	0	0	1,394	774	0.473	0.294	
Dissolved Gases															
Methane	RSK-175	µg/L	--	4.78	4.78	<0.5	<0.5	<0.5	<5.0	<0.5	0.82	1.55	<0.5	NA	
Ethylene	RSK-175	µg/L	--	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	NA	
Ethane	RSK-175	µg/L	--	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	NA
Dioxane															
1,4-Dioxane	SW8260B	µg/L	--	67.8	91.4	63.4	51.5	<2.0	27.8	4.91	3.56	5.91	<2.0	<2.00	

Notes:

U - Not detected above the listed reporting limit

J - Estimated value

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Results are validated

Table 1: Summary of Groundwater Sampling Results

Parameter	Method	Station ID	CVOC	ASMW-01R	ASMW-02	ASMW-03	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02	HPMW-04	
		Sample ID	MCLs	Date	ASMW-01R	ASMW-02	ASMW-03	Duplicate	ASMW-04	ASMW-05A	ASMW-06	ASMW-07	HPMW-01	HPMW-02
				11/8/16	11/8/16	11/8/16	11/8/16	11/8/16	11/8/16	11/9/16	11/9/16	11/7/16	11/7/16	11/7/16
Volatile Organic Compounds														
Ethane Dechlorination Series														
1,1,2,2-Tetrachloroethane	SW8260B	µg/L	--	20.30	14.50	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
1,1,2-Trichloroethane	SW8260B	µg/L	5	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,1-Trichloroethane	SW8260B	µg/L	200	4.10	1.35	<1.00	<1.00	1.11	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloroethane	SW8260B	µg/L	5	<1.00	1.12	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethane	SW8260B	µg/L	--	61.10	75.50	<1.00	<1.00	9.85	<1.00	1.06	2.90	13.40	<1.00	<1.00
1,1-Dichloroethene	SW8260B	µg/L	7	93.80	81.00	<1.00	<1.00	47.80	<1.00	<1.00	1.29	4.43	5.51	<1.00
Chloroethane	SW8260B	µg/L	--	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Methane Dechlorination Series														
Carbon Tetrachloride	SW8260B	µg/L	5	4.33	1.81	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloroform	SW8260B	µg/L	--	7.7	5.87	<0.50	<0.50	3.84	<0.50	<0.50	<0.50	<0.50	0.78	<0.50
Ethene Dechlorination Series														
Trichloroethylene	SW8260B	µg/L	5	4	3.3	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2.28	<1.00
cis-1,2-Dichloroethylene	SW8260B	µg/L	70	1.57	1.71	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethylene	SW8260B	µg/L	100	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Vinyl chloride	SW8260B	µg/L	2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
MNA Constituents														
Nitrate	Calculated	mg/L	--	2.08	2.1	7.87	9.92	4.98	14.3	<0.15	0.86	0.7	22	1
Nitrite	SM18/4500-NO2 B	mg/L	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrate+Nitrite	SM18/4500-NO3 F	mg/L	--	2.08	2.1	7.87	9.92	4.98	14.3	<0.10	0.86	0.7	22	1
Ferrous Iron		mg/L	--	0.85	0.9	0	0	0.04	0	0.54	0	1.26	0.1	
Sulfate	EPA300.0/R2.1	mg/L	--	475	859	111	119	149	364	121	471	221	147	44.2
Sulfide	SM18/4500-S2 E	mg/L	--	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloride	EPA300.0/R2.1	mg/L	--	34.4	41.7	20.8	23.8	545	33.6	75.1	66.3	47.2	57.9	23.8
Ammonia		mg/L	--											3.3
Alkalinity	SM18/2320B	mg/L	--	54	<5.0	<5.0	<5.0	92	<5.0	135	30	76	39	47
Total Organic Carbon (TOC)	SW9080	mg/L	--	1.8	2.9	<1.0	1.8	3.2	1.1	4.5	2.5	3	1.1	<1.0
Dissolved Oxygen (DO)	Field Measurement	mV	--	0.21	2.02	0.69	0.69	0.14	0.43	8.75	6	3.2	1.24	4.01
Oxidation Reduction Potential	Field Measurement	mg/L	--	177.6	252	271.3	271.3	180.4	271	188.8	285	120	472	177
Turbidity	Field Measurement	NTU	--	65.8	0	61.3	61.3	164	166	87.8	807	390	66	178
pH	Field Measurement	STU	--	5.51	6.16	4.57	4.57	8.09	4.59	6.98	5.21	5.95	5.8	5.93
Specific Conductance	Field Measurement	µS/cm	--	1.186	0.15	0.41	0.41	2.76	1.01	0.741	1.482	0.768	838	0.28
Dissolved Gases														
Methane	RSK-175	µg/L	--	9.17	3.3	3.05	<0.5	<0.5	9.6	<0.5	0.59	3.66	<0.5	0.53
Ethylene	RSK-175	µg/L	--	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5
Ethane	RSK-175	µg/L	--	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5
Dioxane														
1,4-Dioxane	SW8260B	µg/L	--	70.4	94.3	56.1	51.5	<2.0	30.3	3.07	4.55	8.09	<2.0	<2.0

Notes:

U - Not detected above the listed reporting limit

J - Estimated value

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NA - Not analyzed

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Results are validated